

Advanced Human Physiology and Health

Human Biology · Practice Test · 15 Questions

1. Which specific hormone is primarily responsible for the maturation of T-lymphocytes in the thymus?

- A) Thymopoietin
- B) Melatonin
- C) Cortisol
- D) Aldosterone

2. In the human nephron, which segment is exclusively impermeable to water under all physiological conditions?

- A) Proximal convoluted tubule
- B) Descending limb of Henle
- C) Ascending limb of Henle
- D) Collecting duct

3. Which cranial nerve is solely responsible for the motor innervation of the superior oblique muscle of the eye?

- A) Abducens nerve
- B) Oculomotor nerve
- C) Trochlear nerve
- D) Trigeminal nerve

4. What is the primary function of the Kupffer cells found within the hepatic sinusoids of the liver?

- A) Bile production
- B) Phagocytosis of pathogens
- C) Glycogen storage
- D) Lipid emulsification

5. Which immunoglobulin isotype is most abundant in human colostrum and provides passive immunity to neonates?

- A) IgG
- B) IgM
- C) IgA
- D) IgE

6. The 'Circle of Willis' provides redundant blood flow to the brain via an anastomosis between which major arterial systems?

- A) Internal carotid and vertebral arteries
- B) External carotid and subclavian arteries
- C) Basilar and axillary arteries
- D) Common carotid and femoral arteries

7. What is the clinical term for the abnormal accumulation of fluid in the peritoneal cavity, often associated with liver cirrhosis?

- A) Edema
- B) Effusion
- C) Ascites
- D) Lymphedema

8. Which enzyme is the rate-limiting step in the cholesterol biosynthesis pathway?

- A) HMG-CoA reductase
- B) Acetyl-CoA carboxylase
- C) Pyruvate dehydrogenase
- D) Citrate synthase

9. What is the primary site of gas exchange in the human lungs where the blood-air barrier is thinnest?

- A) Bronchioles
- B) Alveolar sacs
- C) Terminal bronchioles
- D) Trachea

10. In hematopoiesis, which cell type is the immediate precursor to the mature erythrocyte?

- A) Myeloblast
- B) Reticulocyte
- C) Proerythroblast
- D) Megakaryocyte

11. Which part of the human brain is responsible for the regulation of circadian rhythms via the secretion of melatonin?

- A) Hypothalamus
- B) Pineal gland
- C) Thalamus
- D) Hippocampus

12. Which mineral is a necessary cofactor for the enzyme carbonic anhydrase found in red blood cells?

- A) Magnesium
- B) Zinc
- C) Iron
- D) Calcium

13. What is the primary protein component of the thick filaments within a skeletal muscle sarcomere?

- A) Actin
- B) Myosin
- C) Tropomyosin
- D) Troponin

14. Which specialized cells in the gastric mucosa secrete hydrochloric acid?

- A) Chief cells
- B) Parietal cells
- C) G-cells
- D) Mucous cells

15. What is the physiological role of the enzyme enterokinase (enteropeptidase) in the small intestine?

- A) Digestion of lipids
- B) Activation of trypsinogen to trypsin
- C) Synthesis of vitamin B12
- D) Absorption of glucose